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A new approach to investigation of Maxwell equations in spherical coordinates

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Abstract

© 2015, Pleiades Publishing, Ltd. In this article general solution to the Maxwell equations in spherical coordinates is constructed. The method of expansion of unknown functions into series of spherical harmonics is used. It is shown that the exterior boundary value problems for the Maxwell equations have the unique oriented solutions, and the interior boundary value problems have non-trivial solutions in the case of resonance. Necessary and sufficient solvability conditions of over-determined boundary value problems for the Maxwell equations are found.

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Keywords

Maxwell set of equations, over-determined boundary value problem, spherical coordinates